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Simulation of Systemic Lupus Erythematosus and Lupus Nephritis

Background

Case study teaching methods are commonly used in health science education to challenge students' critical thinking and analytical skills. Studies suggest the use of case studies in the classroom is highly effective when compared to other methods of delivering content[1]. Therefore, believing case studies to be a potent teaching tool, we've developed a novel case study for students enrolled in *Human Disease Applications* (HLTH 30700). We designed a simulation of a patient with systemic lupus erythematosus and lupus nephritis (SLE and LN). The teaching assistant (TA) acted as the patient and the students acted as primary care providers. The purpose of this case study was to evaluate students' knowledge of disease, including symptoms, signs, and diagnostic criteria specifically pertaining to SLE and its complication, LN. It also served a purpose in allowing students to practice studying human disease by applying their knowledge in a clinical setting simulation that encourages students to use critical thinking to formulate a diagnosis.

Methods

This activity was divided into three parts spanning two class periods. Parts I and II were completed during the first class, and part III was completed in the following.

Part I: 'Initial Visit'. As the teaching assistant for the course, I played the role of 'Emma', a 21-year-old student visiting her primary care provider with complaints of vague symptoms that come and go, worsening and improving for the past six months.

The primary care providers, acted by the students, had limited background information regarding the patient. The provider roles necessitated acquisition of the patient history, initial questioning to gather subjective information, recording of physical observations, and further clinical questioning. Students were divided into small groups and "examined" Emma, during which they formulated initial possible diagnoses, and determined further tests they would order.

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Part II: 'Follow-Up Appointment'. Students were provided with Emma's vital signs and initial laboratory results. Providers were allowed additional time with Emma to ask further questions. After discussing the vital signs, results, and notes with group members, the providers shared their final diagnoses with the class. Provider groups explained diagnoses and how they came to their conclusions.

Part III: 'Create Simulations'. For homework, students were directed to create a simulation, choosing diseases within the scope of the course curriculum. The students were spilt into pairs and took turns playing the roles of patients and providers with the case studies they created.

Results and Discussion

This case study could be used for any course focusing on pathology, symptomatology, or clinical diagnostic skills. Student learning objectives were designed to stimulate student learning at each level of Krathwohl's Cognitive Process Dimensions (Revised from Bloom's Taxonomy) engaging students at the lowest level building up to the highest level throughout the scope of the exercise[2]. Students were required to recall information, analyze data, and synthesize observations and symptomatology. When selecting diagnostic testing and further questions they applied and evaluated information and determined a diagnosis. In part three students were challenged to create and act out a new patient case. Additionally, this exercise was designed to meet the upper levels of Miller's pyramid for clinical competence, in which students show how they are utilizing their assessment skills[3].

As the 'patient' in this simulation, it was a unique experience for the students to ask me questions and try to find a diagnosis based on the answers I gave them. My collaborative role in exercise development enhanced my knowledge of both SLE and LN and my understanding of the student learning process. During the activity I observed students to be motivated, engaged, and take ownership for their learning and the learning of their assigned partner. I believe the benefit lies in having a real person act as the patient as opposed to having a case study presented on paper to assist students in their interrelational skills. No two group's experiences were the same because they all asked an array of different questions. In conclusion our simulation reflecting the symptoms and signs of SLE and LN was an effective learning tool.

Sources

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